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ABSTRACT

This study investigated the effect of day care attendance on the receptive and expressive language development of nine 4-year-old children. Five children who had 2 years of day care experience comprised a day care group. A home-reared group was composed of four children who had 3 months of day care experience. Children's receptive language ability was measured by the auditory comprehension items of the Preschool Language Scale (PLS), and their expressive language ability was measured by means of the verbal ability items of the PLS. Children's parents completed questionnaires that assessed the following variables that affect language development: (1) parents' education; (2) parents' income; (3) quantity and quality of language interaction in the home; and (4) children's birth order. The results revealed no differences in auditory comprehension between the two groups. The verbal ability scores of the day care group were slightly, but not significantly, higher than those of the home-reared group. Findings suggest that both home and day care environments are potentially rich in stimulating the language development of young children. Appendices include a day care center questionnaire, an informed consent form for parents, the parent questionnaire, the PLS, and a tabulation of the PLS test results. Contains 52 references. (Author/SM)

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EFFECT OF HOME VERSUS DAY CARE ENVIRONMENT ON THE RECEPTIVE AND EXPRESSIVE LANGUAGE DEVELOPMENT OF FOUR-YEAR-OLDS

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ABSTRACT

This study investigated the effect of day care attendance on the receptive and expressive language development of young children. Nine 4-year old children were scored on the Preschool Language Scale (PLS). Five of the 4-year olds had extensive (two years) day care experience. Four of the 4-year olds had limited (three months) day care experience and were considered to be the home-reared counterparts of the day care group. The scores of the day care group were compared to the scores of the home-reared group. Parent questionnaires were developed by the investigator to solicit information about variables that affect language development, namely parent's education, parent's income, quantity and quality of language stimulation by parents, siblings, and birth order. The results revealed no difference in auditory comprehension (AC) scores between the two groups. However, in verbal ability (VA) the day care group scores were slightly, but not significantly, higher than the home-reared group. Overall findings revealed no significant difference in language development between the two groups, as assessed using the Wald-Wolfowitz Runs statistical test.

REVIEW OF LITERATURE

Introduction

There are those who expect that language development is affected by day care experience. If this is the case, is the effect a positive one? More families are relying on day care as a means of substitute care and hoping that its effect on their children will be positive. Because of the increase in day care enrollment, parents, educators, and researchers now have a greater interest in the effects of day care on infant and toddler development than ever before (Belsky & Steinberg, 1978; Ramey, 1981).

Day care is a kind of intervention that has become more common to children today, largely due to the increased rate of maternal employment because of changes in today's society (i.e. increase of two-income families, single-parent families, divorce, etc.). In March 1981, 8.2 million, or 45 percent of all children under 6 years old had working mothers (Grossman, 1982). As a result there has been an increase in the use of day care by families from all socioeconomic backgrounds. With a rising rate of maternal employment comes a rising rate of infants and toddlers attending day care facilities. Does attending day care have any affect on the receptive (the words a child understands but does not say) and expressive (the words a child says) language development of young children?

Language development was chosen for this investigation because communication plays a crucial role in human behavior and

is a necessary medium for our existence. Without language (be it verbal or written, signs or gestures), where would we be? There is much to be appreciated about language. For example, how each language is different from others; how language can be used for multiple purposes such as, to ask a question, to share an experience, to give an explanation, and more; how it brings people together; and how children learn language in a short time when they are young. At a time of life when children are young, they master a most complex and sophisticated system of sounds and meanings.

Research over the past 10 to 15 years has shown that children's language develops through interaction with people, objects, circumstances, and experiences in their environment (Bruner, 1975). Language specialists have increasingly studied these interactions within the contexts of adult to child interactions and child to child interactions both in the home and outside the home settings (Genishi & Dyson, 1984). Does the environment in which that interaction occurs, specifically day care environment versus home care environment, have any affect on the language development of children? There are several aspects of this interaction. On a day to day basis, interactions are present when people engage in social activity with one another. Conversing at home or away from home in itself is interacting. Different dimensions of our experiences interact with or have an affect on each other (Genishi & Dyson, 1984). That is to say, what goes on in our social lives can affect how we learn and or

perform. Since children learn the language of their culture, the environment must play an important role in the development of their language (Fodor, Bever, & Garrett, 1974; Gleitman, 1981). Thus, children's language inevitably develops through interactions.

There is an abundance of data that suggests the verbal environment provided by adults does indeed affect language development (Nelson, 1977; Nelson, Carskaddon, & Bonvillian, 1973; O'Connell & Farran, 1982; Wells, 1981). Adults are within the home and adults are in day care. Adults provide language stimulation in many settings but the two major ones are in the home and in day care.

Any setting in which growing numbers of children spend many, sometimes most, of their waking hours can be a major influence on all their developments, including language development.

Review on Home and Day Care Influencing Language Development

This review consists of two major topics: 1) factors influencing language development at home, and 2) factors influencing language development at day care.

Factors Influencing Language Development at Home

Parent's Education

Since parents are more than likely to be the first and foremost influence in a child's life, the education level of the parent is of importance. The higher the parent's level of education the greater the probability that parents are able to facilitate language development in their children (Bradley, Caldwell, & Elardo, 1977). Parents have the most constant and continued influence on children. Past research has concluded that the educational level within the family may be the best indicator of IQ and reading skills (Kagan, Kearsley, & Zelazo, 1978). This finding applies to language performance since the cognitive tests most often assess children's understanding and usage of language. In addition, the education level of the parent is bound to be amassed and exhibited in the communication style the parent engages in while interacting with the child. Studies show there is a modest association between maternal schooling and observed responsiveness to infants' babbling. Levine (1991) found that mothers with incomplete primary schooling (1-5 years) responded less than those who attended school longer which suggests that schooling affects maternal

belief concerning readiness for communication in early infancy. It was further found that the overall relationship of maternal schooling to responsiveness variables continues to be significant when children are moving into the most critical period for language acquisition. There is the possibility that parents with more education may be more skilled in stimulating their child's language development than parents with less education. That is, it is the educational level of the parent that may affect the amount and kind of stimulation afforded to children.

Parent's Income

A particularly direct or cause-effect relationship does not exist between the income and language development yet language differences in the middle and lower economic classes have been examined. Studies on socioeconomic status and language reveal that middle-class mothers tend to engage in a richer, more complex, and more intellectually stimulating type of verbal interaction with their children than do lower socioeconomic status mothers; and their children tend to score higher on tests of language skills and intelligence (Carew, 1980; Hess & Shipman, 1965; Schachter, 1979; Moore & Hoefferth, 1979). With increasing two-income and single-parent families with mothers working outside the home is may directly or indirectly influence the language stimulation available in the home. One cannot assume that with both parents working, or single-parent working it would necessarily have an adverse effect on the child's language development since it all depends on the quality of substitute

care.

What has been found, and not surprisingly so, is the fact that there has been an unequal increase in the use of day care facilities as substitute care with the greatest increase belonging to families with higher economic status (Social Trends, 1984). Parents with lower economic status use family members, neighbors, and friends to watch after their children. This finding suggests that middle-class parents are using more formal social support such as day care and lower income parents are using informal social support and both environments can be potentially cognitively stimulating.

Siblings and Birth Order

The number of siblings in the home has its affect on language development. The amount of parental attention and interaction received by each child decreases with each additional child thus leading to less verbal interaction (Walberg & Marjoribanks, 1976). A single child in a family may do better on language skills by receiving all the available verbal interaction and stimulation, whereas a child with four siblings may score lower by receiving less verbal interaction and stimulation.

It has been found that a child's date of birth relative to that of other siblings in the home can affect their development. Some differences have been observed relating to the order in which children are born. In 1896 Sir Francis Galton noticed a large number of prominent British scientists happened to be firstborn. Since then a number of studies have indicated that

firstborn children have a distinct advantage in certain areas of development over other children. In regards to language development, firstborns are more articulate and tend to score higher on intelligence tests than children born later (Dworetzky, 1981). Reasons for these differences are not entirely clear. It may be that firstborns have the undivided attention of parents and are thus given a more stimulating environment than children born later. The firstborn perhaps has greater exposure to adult language than later borns; who end up spending more time playing and talking with their siblings and thus have less accessibility to adult language role models. Supporting this is the fact that firstborns develop language rapidly, while twins develop at a slower rate, and triplets at an even slower rate (Lytton, Conway, & Suave, 1977). Research found that firstborns scored highest on cognitive and intellectual measures, while second, third, and later born children showed lower scores (Zajonc & Markus, 1975).

Quantity of Language Interaction

It has been said that "practice makes perfect." Given more opportunities to practice or engage in verbal interactions, children's language would apparently develop more readily. Here siblings can be advantageous since interaction serves as the basis of language development. The presence of siblings in the home would seem to increase the possibility of interacting with another, thus heightening the possibility of a young child's language development because of more chances to interact with others. Also, having other siblings in the home makes it

possible to hear more language being used. This additional encounter with language, even if the child merely hears a conversation between other family members, still affords an opportunity for language stimulation. A lot of language heard by young children within a household may not be directed toward them, however, they listen when conversations take place between other siblings and parents (Dunn & Shatz, 1989). With other siblings in the home young children get an opportunity to use language more due to increased encounters, and may also be able to hear more language being used while in the presence of other siblings and parents. Encounters such as these, both direct and indirect respectively, lead to the possibility of greater language learning and usage with the presence of sibling. A study by Dunn & Shatz (1989) revealed when young children listen to the language of parents and older siblings they have an opportunity to receive input and may more often than not respond or intrude in conversations not solely addressed to them.

In the home mothers spend a majority of their time caring for their children, and are a guiding force behind their child's development. For example, during feeding, bathing, and dressing chances for verbal interaction multiply; it is during occasions such as these that researchers believe the language acquisition process takes place (Brazelton, 1969; Genishi & Dyson, 1984). Studies show that eating meals together (assuming conversation takes place during mealtime) enhances children's language (Smart & Smart, 1973). Children whose parents often talk with them,

read to them often, and in most instances interact with them verbally, profit greatly in language development. All educators believe that reading to children is especially important because it exposes them to language and helps builds their vocabulary.

Quality of Language Interaction

What seems to be of greater importance than quantity of language interaction, is the quality of language used during the interaction. Research shows that quality verbal interaction by an adult positively correlates with more child vocalization, maybe earlier vocalization, and better performance on some language and intelligence tests (Carew, 1980; Hess & Shipman, 1965; Bernstein, 1961 & 1964). The family environment of the child is probably the most important entity affecting the nature or quality of language the child develops. When mothers are employed outside the home they undoubtedly spend less time with their children than mothers who do not work. However, it has been established that the number of hours parents spend with their children is not the critical determinant of children's language development. It is the quality of parent-child verbal interaction, such as, type of parental input which includes informative talk, modeling, and expansion (Nelson, Carskaddon, & Bonvillian, 1973). Expansion aids children's grammatical development. Brown, Cazden, & Bellugi-Klima, (1977) in a study involving three mothers, each with a child, found that two of the children who acquired language most quickly had mothers who used expansions more frequently. Thought provoking and cognitively

stimulating interactions are more important to language development than mere quantity of interaction (Kavanaugh & Jirkovsky, 1982; Hess & Shipman, 1965). The children's level of language development is higher in instances where the frequency of informative talk is high and where adults answer children's questions (Gleason & Weintraub, 1978; Kavanaugh & Jirkovsky, 1982; Tizard, Cooperman, Joseph, & Tizard, 1972).

Researchers through numerous studies have found that the form of parents language input proved to be an important factor in children's speech (Kavanaugh & Jirkovsky, 1982), and that parents' verbal interactions that were responsive to children assisted the child's progress in language development (Kavanaugh & Jirkovsky, 1982; Bradley, Caldwell, & Elardo, 1977).

Factors Influencing Language Development at Day Care

Adult-Child Ratio

High adult to child ratio is an important characteristic of high quality day care (Roupp, Travers, Glantz, & Coelen, 1979). Each caregiver engages with few children in a stimulating and effective verbal interaction (Frances & Self, 1982; Howes, 1986). Howes and Rubenstein (1985) report that when there were three or fewer toddlers per each adult, children are engaged in more talking and playing with adults and spent less time crying. Caregiver responsiveness, which research describes as one indicator of quality verbal interaction, is also linked to adult-child ratio. Frequent, quality adult verbal interaction with children in day care is extremely important and could be afforded

more readily when coupled with an effective (high) adult to child ratio. Children in day care settings with more adults per child had higher talk and play scores than children in day care settings with fewer adults per child (Howes & Rubenstein, 1985)

If caregivers are less available in day care, children spend more time with their peers because peers are more available to interact than caregivers. This could situation could have a negative affect on language development. McCartney (1984) reported that the greater the number of conversations initiated with a peer in day care, the lower the language score of young children. The explanation for this finding was that peer talk replaced the more important caregiver talk. Howes, (1983) reports that caregivers are more sensitive and responsive when there are fewer children to care for and more adults in the room.

Quantity and Quality of Language Interaction

Research shows the amount of verbal interaction with caregivers is important in attaining language skills and development. Because the amount of verbal interaction is a significant predictor of children's test scores, McCartney (1984) explored the effects of type of functional utterance. Results show that children do better in centers with a low proportion of control (short and less rich) utterances and a high proportion of representational (longer, more verbally rich) utterances. In a day care environment children have more chances to engage in language interaction because numerically more children and more adults are available to interact with. The number of verbal

interactions initiated by children is closely related to the atmosphere created by the caregiver. McCartney (1984) also found that children who initiate conversations do better on tests of language development.

A range of data also suggests quality verbal stimulation by caregivers does indeed affect language development (McCartney, 1984; Rubenstein & Howes, 1985). Appropriately responding to children initiating conversations and asking questions stimulates their language development. Infants and toddlers with more responsive and sensitive caregivers have higher cognitive and language scores (Howes, 1983; Rubenstein & Howes, 1983).

Caregiver ability to engage in quality language interaction is related to their formal training as caregiver. Caregivers with little child-related formal education and training engage in less frequent positive adult-child verbal interaction (Ruopp, Travers, Glantz, & Coelen, 1979). Howes (1983) reports that caregivers are more sensitive and responsive when they have had formal training in child development.

Verbal interaction with peers, though not discouraged, is said to be of lower quality than caregiver to child interaction. McCartney (1984) found that the more verbal interaction among peers, the lower the language score. Peer talk replaced the more important and high quality caregiver talk.

Quality verbal interaction is deemed important in language development and is said to be characteristic of high quality day care. Infants and toddlers in higher quality day care have

higher language and cognitive scores (Howes & Stewart, 1987). More responsive and sensitive caregivers is what led to this finding (Howes, 1983). Quality in what caregivers say to children aids in language performance. Implicit in caregiver to child interaction is the kind of language that caregivers use with children.

Structure of Program

Program administration and organization can influence a child's language growth. Tizard, Cooperman, Joseph, & Tizard (1972) who examined language development of 2- to 5-year olds in residential nurseries in England, reports that being in a nursery per se had no positive or negative effects either way on children's overall development. However findings suggest the organization of nurseries affected the quality of language used by the children and staff. Specifically, scores obtained through formal psychological tests comprising measures of both verbal and nonverbal development were found to be higher when administrative and instructional decisions could be made by the staff on their own; when the staff was given little autonomy, they could not offer it to the children. As Tizard explains, the ethos of a nursery where decisions are made at the top and each level knows its position in the hierarchy favors the development of obedience rather than child autonomy. This type of social structure has implications in terms of verbal interchange; the rigid framework of rules and routine yields very little occasion for discussion either among staff or between staff and children; the expectation

of group conformity was so pervasive that it was rare to hear a child offered a choice of any kind or given an explanation for any request. However, in nurseries less centralized where the staff could plan their own day and were not under constant surveillance, they could treat the children more flexibly; discussion on such topics as today's menu, how to spend the afternoon, or which television program to watch became more possible leading to more verbalization. Through observation, staff talk was seen to be more varied and interesting and children appeared to both address and answer the staff more often. Greater language interactions were viewed in the classroom because staff had initiative administrative autonomy decision making which resulted in promoting more language in children. Hence this explains the relationship between administrative decisions and children's enhanced language production. Tizard's basic viewpoint is that the way in which staff behave and talk within an institution is much influenced by its organizational structure.

Daily schedule and routines can affect language. According to McCartney (1984) children were observed to interact better in structured centers organized by caregivers that resulted in low noise level, little choice of space, little activity variety, little play time, and lots of group activity time. Results showed caregivers interacted and talked more with children in those type of centers than adults in other centers. Children's performance was better on tests, Peabody Picture Vocabulary Test

(PPVT) and Preschool Language Assessment Instrument (PLAI) of language development in centers of this nature.

Research shows that while the amount and variety of space, activities, materials and toys may not greatly influence language development, the way in which space is equipped and organized may be more important (McCartney, 1984; Belsky, Steinberg, & Walker, 1982). The amount and variety of play equipment seems to have little influence on children's test scores, however, the manner in which materials and equipment are set up can encourage greater verbal interaction which enhances language stimulation. Toddlers were observed to pay more attention to each other when playing with stationary equipment (Doke & Risley, 1972), thus leading to more verbal interaction. With stationary equipment children know in advance what is available to play with and how they will go about their play by recalling recent play with others. Shure (1963), noted a high number of interactions in the doll corner and block area. Shure explains, the doll corner by nature requires many children to play the thematic role of family and therefore is more conducive to verbal exchanges thus stimulating language development. With the block corner the situation is slightly different; here a group of children have to work together in cooperatively building a structure, however, each of them has their own view as to the process and the product and impose their own reality on the objects, namely the blocks. Often these personal schema are not in agreement with other children's schema thus resulting in conflict. As a result

children have to verbally negotiate, listen, and express different points of view and this results in more verbal interaction. Materials and equipment provided for children influence their behavior which in turns affects the language used to express their feelings.

Administration and structure of the day care program affects the quality of care center to center, but studies of day care affects have demonstrated that substitute day care in itself is not damaging to children's development. Past research suggest that day care staff need to consider different organizational features of centers, as they may affect language development in significant ways (Tizard, et al., 1972). Staff autonomy is one feature influencing language for it has led to higher scores on measures of both language comprehension and production.

Language development is further influenced by the amount and variety of activities, equipment and materials available to the child, and the manner in which they are organized and set up further influences language development. The communicative situation, such as the amount of space available, amount of equipment, and type of activities can have powerful affects on the kinds of language a child produces, however, the manner in which they are set up has greater influence on the verbal interaction that takes place and ultimately leads to more verbal interaction. A significant feature of the situation is activities which support and promote talk between child and child and between caregiver and child.

Research Question

What is the effect of home care environment with limited day care experience (three months) versus extensive day care experience (two years or more) on the receptive and expressive language development of 4-year old children as measured by the Preschool Language Scale?

Null Hypothesis

There will be no statistical significant difference using the Wald-Wolfowitz runs test between children in home care (with thee months of limited day care experiences) and children in day care (with over two years of experiences) on receptive and expressive language development as measured by Preschool Language Scale.

METHODS

Design

The basic design of the study involves a comparison of children's language performance. Receptive and expressive language scores were obtained from 4-year olds attending day care for two years. These scores were compared to the scores of 4-year olds attending day care for less than three months. The children who had no more than three months of day care experience were labeled the home care group. Children with more than two years of day experience were labeled the day care group.

Subjects

Ten 4-year olds were selected to participate in the study. Five of the ten children had been enrolled in day care for the past two years, and the other five 4-year olds have had limited (three months) day care experience. Even though this study investigated the language development of 4-year old day care children compared to their 4-year old home-reared counterparts, all subjects chosen for the study were selected from a day care center within Western Wayne County. Those children selected were given consent forms for parents to sign agreeing to their participation in this pilot study. Out of the ten forms sent home, nine were returned giving permission for their child to be included in this study. The division of the nine children into specific groups were as follows: five children were in the day care group and four were in the mostly home care group. The day care group consisted of 3 girls and 2 boys. The mostly home care

group consisted of 2 girls and 2 boys.

Owing to the need of day care subjects, three day care centers were contacted in Western Wayne County, Michigan for the purpose of recruiting possible subjects for the study. Day care providers were given a rating scale to evaluate the quality of verbal stimulation provided at their center. The items developed on this 5-point rating scale were based on the research findings related to language stimulation in child care centers reviewed earlier (see Appendix A).

The subjects were finally selected from the center that was rated highest on caregiver-child language stimulation, verbal interaction, structure of program, and equipment and space. The director of this highest rated center compiled a list of 4-year olds who had attended day care for the past two years as the potential "day care" subjects and those who had been in day care for three months or less as the potential "home care" subjects. Parents of these children were sent a letter requesting their consent for their child's participation in this study (see Appendix B).

Subjects were then matched for age, the day care group age range was 49 months to 55 months and the home care group age range was 48 months to 55 months. They were also matched for sex of 2 boys and 3 girls in each group, however, there was an attrition of 1 girl in the home care group.

A questionnaire was developed for parents to solicit information on the predictor variables which influence language

development, for example parent's education and income; quantity and quality of parent-child verbal interaction and care interaction time. Parent's education level was coded on a 4-point scale: (1) high school diploma/GED, (2) some college, (3) college grad, (4) graduate degree. Parent's income level was coded on a 5-point rating scale: (1) below $15,000, (2) $15,000 - $25,000, (3) $25,000 - $35,000, (4) $35,000 - $50,000, and (5) over $50,000. Study child's birth order and number of siblings were also recorded (see Appendix C). The questionnaire served two purposes first, it yielded data on the home environment of both the groups. An effort was then made that both the home care and the day care group were matched in their home environment such as parental strategies for correcting language, frequency of reading to their children, and the availability of the mother during caregiving activities which lends itself to language stimulation. The second purpose it served was to ensure that the home care group also came from a high quality environment thus making it comparable to the high quality day care group.

Measures

Each child was administered the Preschool Language Scale (PLS) which is an assessment that measures receptive and expressive language. The assessment has two parts: 40 auditory comprehension (AC) items that assess receptive language and 40 verbal ability (VA) items that assess expressive language. The 40 items are grouped into 10 series of auditory language tasks

and 10 series of verbal language tasks with each task assigned to a certain age level (Zimmerman, Steiner, & Pond, 1979). The PLS offers a detailed survey of a child's early language comprehension and use. Results from administration of the PLS gives useful information concerning the child's strengths, emerging skills, lags, and deficiencies in receptive and expressive language. Some merits of the PLS include clearly defined instructions, ease in administration, a simplified scoring system, attractive test materials designed to maintain young children's interest, and reasonable administration time (a 20 minute individualized test).

Administration of the test took place at the day care center in a room away from the classroom. Each child was removed from the classroom one at a time for testing.

RESULTS

There was no significant difference in the language development of the day care group compared to the home care group as measured by the Preschool Language Scale (see Appendix D).

Statistical Analysis of Results

The Wald-Wolfowitz runs test was used to analyze the PLS test results (see Appendix E) to support the null hypothesis for this pilot study. The Wald-Wolfowitz runs test is applicable when testing the null hypothesis that two independent samples have been drawn from the same population against the alternative hypothesis that the two groups differ in any respect whatsoever (Siegel, 1956). Auditory comprehension (AC) and verbal ability (VA) scores were analyzed using this test. Results support the null hypothesis for this study, that there will be no statistical significant difference using the Wald-Wolfowitz runs test between children in home care (with thee months of limited day care experiences) and children in day care (with over two years of experiences) on receptive and expressive language development as measured by Preschool Language Scale.

Table 1

Wald-Wolfowitz Runs Test

Performance of Day Care Group and Home Care Group

Auditory Comprehension (receptive language):

31	31	34	34	34	37	38	40	41
D	H	D	D	H	H	D	H	D

Verbal Ability (expressive language):

28	30	31	33	33	33	35	36	39
H	D	D	H	H	D	H	D	D

D = Day Care H = Home Care

To apply the test to data from two independent samples of size n1 in this study being the day care group and n2 being the home care group, rank the n1 + n2 scores in order of increasing size. Hence this is now ordinal data. That is, cast the scores of all subjects in both groups into one ordering. Then determine the number of runs in this order series. A run is defined as any sequence of scores from the same group, such as a day care group together resulting in D's in succession and home care group together resulting in sucessions of H's. Retain the identity of each score with the sign of the group to which it belongs. Observe the order of the occurrence of these signs (D's and H's) to determine the number of runs. If the two samples are from the same population (that is, if the null hypothesis is true), then the scores of the D's and the H's will be well mixed. In that

case the r, which is the number of runs, will be relatively large. It is when the null hypothesis is false that r is small (Siegel, 1956). Looking at the Wald-Wolfowitz runs test for the scores in this study, the number of runs is relatively large. There is a total of seven runs with nine scores, thus, the null hypothesis is true.

Discussion

Children attending extensive day care did not significantly score higher than children with limited day care experience using the PLS.

This finding establishes the researcher's hypothesis that there is no difference in receptive and expressive language of those children who have mainly been at home versus those who have been attending day care. The next concern should be if it is not home versus day care then what are the variables that make a difference in children's language development. Therefore this investigator suggests that each variable relating to language development, regardless of whether the children were at home or in day care needs to be further examined.

Parent's Education. For parent's education the data reveals: 1-college graduate for day care group (DCG) and 1-college graduate for home care group (HCG); 2-with some college education for DCG and HCG; 1-high school education for DCG and HCG; the only beyond college graduate education level was from the DCG. Thus the two groups were almost similar and matched regarding parent's education. The four children whose test

scores were highest in both groups had parents who were college graduates or had a graduate degree. The child who scored the highest on the PLS had a parent whose level of education was beyond the college graduate level (Masters, Ph.D.). Thus parent's education level seems to be a variable in language development of children in both groups. Bradley, Caldwell, & Elardo, (1977) and Kagan, Kearsley, & Zelazo, (1978) have also reported parent's education level is related to language development.

Parent's Income. Regarding parent income level, no child had parents with an income below $15,000. One child in the day care group and two children in the home care group had parental income between $15,000 and $25,000. Three children out of the six lowest level income families also scored lowest on the PLS. Carew (1980), Hess & Shipman (1965), Schacter (1979), report that middle-class mothers tend to engage in a higher quality of verbal interaction with their children than do lower-class mothers. Socioeconomic level is related to language acquisition, however, income is not a determining or causal factor of language acquisition.

Parental Verbal Interaction. Three out of the four highest scoring children had parents who engaged in a high quantity of verbal interactions with them. Fodor, Bever, & Garrett (1974) also reported that language development is facilitated by the opportunities given to children to engage in conversation with others, particularly adults.

The quality of verbal interaction was found to be a salient factor in language development (Hess & Shipman, 1965; McCartney, 1984; Tizard, Cooper, Joseph, & Tizard, 1972). These research findings are supported by the results of this study, namely that children with the highest scores engaged in more quality verbal interaction with parents than did lower scoring subjects. Research reviewed states that the environment affects children's language development (Carew, 1980; Hess & Shipman, 1965; Bernstein, 1961 & 1964) and the verbal interaction with others in that environment is a particularly important determinant of language skill (McCartney, 1984; Howes, 1983; Bradley, Caldwell, & Elardo, 1977; Kagan, Kearsley, & Zelazo, 1978; Tizard, Cooper, Joseph, & Tizard, 1972).

In the home environment parents are the guiding force of children's developmental process. As such, they are believed to be the first and foremost facilitator of children's talk. The quality of adult language input is manifested in their education (Levin, 1991).

Siblings and Birth Order. Parents' ability to foster children's language development varies with family size and birth order (Walberg & Marjoribanks, 1976; Zajonc & Markus, 1975). Research found that the presence of more children in the home reduces the verbal interaction afforded each child, and verbal interactions decrease with each later born child (Zajonc & Markus, 1975; Lytton, Conway, & Suave, 1977).

A decrease in quantity of language interaction affects

language development, for the amount of language interaction is a determinant of language performance and development (McCartney, 1984). On the other hand Dunn & Shatz (1989) report that the presence of siblings heightens language development.

Limitations of Study

The home care children were exposed for three months to day care and that confounds the findings. The investigator's assumptions were that three months of day care influence was negligible. However, this could be an incorrect assumption. It is possible that within three months these children had a very strong influence of day care and their performance on PLS could not be only attributed to home care rearing, but has to be attributed to home care and day care environment combined; thus the contribution of day care to the language of the home care group is unknown. The investigator had no option but to choose these children who had limited day care experience since the mothers of the children who were on waiting list refused to participate in the study.

Secondly, the matching of the subjects regarding the quality of the home environment and the quality of the day care environment was based on data gained from self-report. There is a tendency for self-report data to rate themselves higher on socially desirable characteristics, especially when asked by an outside researcher. Instead, observations of home and day care environment would have yielded a more accurate and reliable data regarding the exact quality of language stimulation in these two

environments.

Given these limitations, and the sample size being very small the findgings are highly tentative, of an exploratory nature and cannot be generalized to a larger population. However, this pilot study does suggest that researchers instead of examining global constructs such as home care versus day care need to continue examining more molecular variables such as education and parent's verbal interaction influencing the child's language development.

In conclusion, this investigator's tentative findings suggests that <u>both</u> the home and day care environments are potentially rich in stimulating language development in young children.

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APPENDIXES

Appendix A

Rating Scale for
Language Stimulation in Day Care

Name of Facility (optional) _____

Number of Children _____ Ages of Children _____

Title of Caregiver _____

KEY: 1. All the time; 2. Most of the time; 3. Sometimes;
4. Rarely; 5. Never

	1	2	3	4	5
I. Role of Adult					
A. Adult stimulates language in children through:					
1. Materials and activities					
a. field trips					
b. pictures					
c. books					
d. circle time with child participation					
e. music					
f. special group projects					
g. joining dramatic play					
COMMENTS:					
2. Verbal interaction					
a. listening					
b. building on child initiated conversation					
c. modeling appropriate - vocabulary					
- sentence length					
- sentence structure					

	1	2	3	4	5
d. open-ended questions					
e. verbal reinforcement for language use					
f. appropriate volume					
g. sharing feelings verbally					
h. encouraging children to verbalize feelings					
i. communicating at children's eye level					
j. warm physical contact with children when communicating					

COMMENTS:

B. Adult's philosophy

1. Has written goals for children's language development					
2. Perceives play as important to learning					

COMMENTS:

II. Role of Children:

A. Children have appropriate opportunities to:

1. Choose activities independently					
2. Settle their own disputes					
3. Initiate conversation					

	1	2	3	4	5
4. Make believe					
5. Express needs verbally					
6. Assume responsibility for: a. clean-up					
b. snack time					
c. dressing					
d. toileting					
e. other:					
7. Listen and observe					
8. Participate in planning activities					
9. Be alone					
COMMENTS:					
III. Structure of Space:					
A. Size of space appropriate to number of children					
B. Variety of activity areas					
C. Comfortable (heat, light, floor, etc.)					
D. Outdoor space					
E. Display of toys and equipment					
COMMENTS:					
IV. Structure of Time:					
A. Daily routine					

	1	2	3	4	5
B. Variety of activities					
1. Free play					
2. Out-door play					
3. Snack					
4. Quiet time (if applies)					
5. Organized group time (story, music, game)					
C. Appropriate closure to activities					
D. Planned transition time					
1. Allow enough time					
2. Prepare children for change					
3. Respect children's need to finish activities later					
4. Adult sees transition as a learning tome					
COMMENTS:					
V. Toys and Equipment:					
A. Age appropriate					
B. Toys allow for imaginative play:					
1. Dress-up and house					
2. Blocks					
3. Puppets					
4. Playdough					
5. Art materials					
6. Outdoor equipment					
C. Children taught respect for materials					

	1	2	3	4	5
D. Toys provide variety of choices for children (large and small motor)					
E. Safe equipment					

COMMENTS:

Caregivers are models and facilitators for language development in young children. Answer the following questions about your interaction with the children.

1. Is there back and forth interaction or a monologue on your part?

2. Who does most of the talking, the child or you?

3. Are your questions open-ended or close-ended?

4. Is your language production geared to the children's understanding and at the same time expanding on their existing language?

5. Do you involve children in activities that lend themselves easily to promoting verbal interaction?

6. Is there maximum chance for children to converse with each other?

7. Do you take action to involve children in verbal communication when there is the opportunity?

8. If a child is grammatically incorrect when speaking, do you stop the conversation to correct the child or do you let the child finish then provide the correct grammar as you answer?

Do children in your care use language:	Yes	No
to talk about what he/she does?	____	____
to talk about what others do?	____	____
to talk about something that happened in the past?	____	____
to talk about something that will happen in the future?	____	____
to ask for things?	____	____
to ask someone to do something?	____	____
to get information?	____	____
to get permission?	____	____
to talk about his or her positive and negative feelings about him or herself?	____	____
to talk about his or her positive and negative feelings about others?	____	____
to make others laugh?	____	____
to make childlike jokes?	____	____

Appendix B

Informed Consent

I give permission for my child _____ to be included in a study of language development in children to be conducted by Edna L. Lewis, a graduate student at Wayne State University as part of her work toward her Master Degree Project.

I have been informed that any and all test results will remain confidential and be applied only to the study as stated above.

I have been advised that I am free to withdraw my consent and to discontinue my child's participation in the project or activity at any time.

I have read and I understand the above study participation statement. I agree to my child's participation in the study and I have received a copy of this description.

Signatures:

_____ _____
Parent Date

_____ _____
Study Conductor Date

Appendix C

Parent Questionnaire

1. Approximate number of hours spent in parent to child interaction during the day?

__ 0-3 __ 4-6 __ 7-9 __ 10-13 __ 14-16

2. Approximate number of hours spent in direct child care during the day? (such as, feeding, bathing, dressing, etc.)

__ 0-1 __ 2-3 __ 4-5 __ 6-7 __ 8-10

3. How often do you read to your child or help him/her learn things such as colors, numbers, animals, etc.?

__ often __ sometimes __ hardly ever __ never

4. When your child uses incorrect grammar do you?:

__correct him/her right away and have child say it correctly

__let child finish then you give the correct grammar

__do nothing because you know what he/she means

__tell child he/she said it wrong then give the child the correct grammar

5. My education level is:

__high school diploma/GED __some college __college grad

__beyond college grad (Master Degree, Ph.D., etc.)

6. Annual income is:

__below $15,000 __$15,000 - $25,000 __$25,000 - $35,000

__$35,000 - $50,000 __above $50,000

7. Number of other children in the family? _____

8. Birth order of child included in this study?

__ firstborn __second __third __fourth __other

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For Duplication Only

PLS Preschool Language Scale

Record Form

Revised Edition

Irla Lee Zimmerman, Violette G. Steiner, & Roberta Evatt Pond

Materials needed to administer test:
Preschool Language Scale manual
Preschool Language Scale picture book
12 1" colored blocks in box (red, yellow, blue, green, orange, purple)
Small piece of coarse sandpaper
Set of coins: half-dollar, quarter, dime, nickel, penny
Watch or clock with second hand

Auditory Comprehension:

Point Score ____ AC Age ____ ACQ ____

Verbal Ability:

Point Score ____ VA Age ____ VAQ ____

Language Age ____ LQ ____

$\frac{AC + VA}{2} = LA$ $\frac{ACQ + VAQ}{2} = LQ$

Name _____

School _____

Teacher _____

Parent or guardian _____

City _____ State _____

Examiner _____

Yr. Mo. Day

Date administered _____

Birthdate _____

Chronological age _____

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Auditory Comprehension

Section and Age	Basic Concepts	Object Permanence	Sequencing	Memory and Attention Span	Temporal Spatial Relations	Sub-test
Sec. I 1–1½ yrs.	2 3		1 3 4	2 4	1 4	3
Sec. II 1½–2 yrs.	5 6 7	6	5 6 7 8	8	8	7
Sec. III 2–2½ yrs.	10 11 12	9 10 11	10 11	12	12	11
Sec. IV 2½–3 yrs.	13 15 16	15 16	13 14 15 16		14	13 15
Sec. V 3–3½ yrs.	18 19 20	18 19 20	18	20	17	17
Sec. VI 3½–4 yrs.	21 23 24	21 23 24	22 23 24		22	24
Sec. VII 4–4½ yrs.	25 28	25 27 28	26 28	27	26	26
Sec. VIII 4½–5 yrs.	30 31	31	31 32	30	29	29 31 32
Sec. IX 5–6 yrs.	35	34 35 36	33 35	36	33	33
Sec. X 6–7 yrs.	38 39	39 40	37	38 39 40	37	37

Verbal

Section and Age	Vocal Discrimination	Verbal Memory	Verbal Expression	Verbal Sequencing	Sub-test	Sub-test
Sec. I 1–1½ yrs.	1	2	1 2 3 4	1 3 4		2
Sec. II 1½–2 yrs.	6		5 6 7 8	5 6		7 8
Sec. III 2–2½ yrs.	9 10 11 12		10 11	9 10 11 12		
Sec. IV 2½–3 yrs.	13	14 15	14 16	13 16		15 16
Sec. V 3–3½ yrs.	20	18 19	17	18 20		17 19
Sec. VI 3½–4 yrs.	21	22 23	21 22	21 24		23
Sec. VII 4–4½ yrs.	25 27	26 28	26 28	25		27 28
Sec. VIII 4½–5 yrs.	29 31 32	30	29 30	29 30 32		31
Sec. IX 5–6 yrs.	33 36	34	34	33 34 36	35	35
Sec. X 6–7 yrs.	37 40	38	38 40	37 39 40	39	39

Appendix D

2 The following sections, I through VIII, cover items 1 through 32. Each section contains items, and each item passed earns 1 point or 1½ months age credit. Sections and X cover items 33 through 40; here each item passed earns 2 points or 3 months age credit. For each item, mark in the blank provided which questions the child responded correctly to. Then mark the number of points earned for each item in the column to the left of the item, either 0, 1, or 2. Each item will indicate what the child must do to earn a passing score. In the verbal ability sections, ignore faulty pronunciation.

SECTION I: 1 year to 1 year 6 months

Auditory Comprehension

1. Understands Questions
   a. Where is mother (teacher)? ____
   b. Where is the bathroom (door)? ____
   (Indicates one, gestures acceptable.)
2. Looks Attentively
   (*Picture Book* plate 1, p. 2.)
   Where is the a. dog____; b. baby____
   (Points to one picture.)
3. Recognizes Doll Parts
   (*Picture Book* plate 2, p. 4. Same as item 7; administer only once.)
   Show me the dolly's: a. hair____
   b. mouth____, c. eyes____, d. feet____,
   e. nose____, f. ear____, g. hands____
   (Points to two.)
4. Follows Directions
   (One block. Same as item 8; administer only once.)
   Put the block:
   a. on the chair____, b. on the table____, c. in the box____
   Give the block: d. to me____
   (Carries out two instructions.)

Verbal Ability

1. Echoes or Imitates
   Imitates and echoes words or sounds when urged playfully. ____
   (Imitates at least two different words or sounds.)
2. Asks for Simple Need
   Has been observed or reported to ask for water or another simple need. ____
   (Uses at least one word to express a need.)
3. Uses Ten Words
   Observed or reported to use ten or more words, including names. ____
4. Names One Object
   What (who) is this?____
   (Names one object or person he knows; urging by examiner acceptable.)

SECTION II: 1 year 6 months to 2 years

Auditory Comprehension

5. Identifies Pictures
   (*Picture Book* plate 3, p. 6.)
   Show me the: a. cup____, b. spoon____, c. shoe____, d. ball____
   (Points to two.)
6. Discriminates Pictures
   (*Picture Book* plate 4, p. 8.)
   Where is the dog?____
   (*Picture Book*, plate 5, p. 10.)
   Where is the wagon?____
   (Passes both.)
7. Recognizes Doll Parts
   (*Picture Book* plate 2, p. 4. Same as item 3; administer only once.)
   Show me the dolly's: a. hair____,
   b. mouth____, c. eyes____, d. feet____,
   e. nose____, f. ear____, g. hands____
   (Points to six.)
8. Follows Directions
   (One block.)
   Put the block: a. on the chair____, b. on the table____,
   c. in the box____
   Give the block: d. to me____
   (Carries out four instructions.)

Verbal Ability

5. Combines Words
   Uses two- to three-word combinations. ____
   (Two different word combinations are used or reported.)
6. Names Objects
   What is that? ____
   (Same as item 10; administer only once.)
   a. shoe____, b. watch____, c. table____,
   d. ball____, e. chair____, f. block____,
   g. pencil____, k. floor____
   (Passes three.)
7. Uses Pronouns
   Uses pronouns correctly, such as *my, mine, you, me.* ____
   (One or more pronouns observed or reported.)
8. Refers to Self by Name
   Refers to self by name—"Jimmy do it"—or gives first name. ____
   (Observed or reported at least once.)

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SECTION III: 2 years to 2 years 6 months

Name _____

Auditory Comprehension

9. Understands the Concept of "One"
(Twelve blocks.)
Give me just one.____
(Must hand examiner only one block.)

10. Compares Size
(*Picture Book* plate 6, p. 12.)
Show me the tiny, little spoon.____
(Points to smaller spoon on first trial.)

11. Understands Use
(*Picture Book*, plate 7, p. 14.)
(Same as item 15; administer only once.)
Show me what: a. we use to comb our hair____, b. we use to drink our milk____, c. goes on our feet____, d. we ride on____, e. we use to iron clothes____, f. we can cut with____, g. we use to sweep the floor____
(Passes three.)

12. Follows Simple Commands
(Twelve blocks, box.)
a. Make a tower like this.____
b. Now, let's make a train.____
c. Now, put the blocks in the box.____
(Passes two.)

Verbal Ability

9. Repeats Two Digits
Listen: say 2.
Now say: a. 4–7____, b. 5–8____, c. 3–9____.
(Passes one.)

10. Names Objects
(Same as item 6; administer only once.)
What is that?
a. shoe____, b. watch____, c. table____,
d. ball____, e. chair____, f. block____,
g. pencil____, h. floor____
(Passes five.)

11. Repeats Sentences
Can you say, I am a big boy (girl)? a. I like to play in the water____.
b. I have a little dog____, c. The dog chases the cat____.
(Repeats one sentence.)

12. Articulates Consonants I
(See page 7 in this record form booklet.)
(Administer all articulation items at same time. Child passes if correctly pronounces consonants in Group I.)

SECTION IV: 2 years 6 months to 3 years

Auditory Comprehension

13. Recognizes Action
(*Picture Book* plate 8, p. 16.)
Where is: a. playing____, b. washing____, c. blowing?____
(Passes two.)

14. Distinguishes Prepositions (One block.)
(Same as item 22; administer only once.)
Put the block: a. on the chair____, b. under the chair____, c. in front of the chair____, d. beside the chair____, e. in back of the chair____
(Passes two.)

15. Understands Use
(*Picture Book*, plate 7, p. 14.
Same as item 11; administer only once.)
Show me what: a. we use to comb our hair____, b. we use to drink our milk____, c. goes on our feet____, d. we ride on____, e. we use to iron clothes____, f. we can cut with____, g. we use to sweep the floor____
(Passes five.)

16. Distinguishes Parts
(*Picture Book* plate 9, p. 18.)
Show me the: a. wheels of the train____, b. door of the car____, c. tail of the horse____, d. nose of the cow____
(Passes three.)

Verbal Ability

13. Repeats Three Digits
Listen. Say 4–2.
Now say: a. 1–4–9____, b. 9–6–1____, c. 2–5–3____.
(Passes one.)

14. Uses Plurals
(*Picture Book* plate 10, p. 20.)
What is this? (a. shoes____, b. blocks____, c. socks____, d. bananas____)
(Passes two.)

15. Comprehends Physical Needs
(Same as item 19 and item 23; administer only once.)
What do you do when you are: a. sleepy?____ b. hungry?____ c. cold?____
(Passes one.)

16. Converses in Sentences
Tell me about your pets. (or) Tell me about your toys (sister, baby).
_____
_____
(Uses two or more four- to five-word sentences to answer.)

SECTION V: 3 years to 3 years 6 months

Auditory Comprehension

Verbal Ability

Picture Book plate 11, p. 22.)
Which one tells you it is nighttime?____
(Points correctly on first touch.)

18. Compares Length
(*Picture Book* plate 12, p. 24.)
Show me the long one. Put your finger on the long line.
(Six trials, alternating position of plate.)
a. b.
c. d.
e. f.
(Passes three out of the first three or five out of six.)

19. Matches Sets
(Twelve blocks.)
Make yours like mine.
Matches: a. 1____, b. 4____, c. 2____, d. 3____
(Passes three.)

20. Groups Objects
(*Picture Book* plate 13, p. 26.)
Show me: a. all the animals____, b. all the things we eat____, c. all the toys____
(Passes two; points to three in each group.)

What is your name? _____
(Gives full name.)

18. Counts to Three
(Three blocks.)
How many blocks are here? _____
(Realign blocks for second trial.)
Tell me how many is that? _____
(Passes two.)

19. Comprehends Physical Needs
(Same as items 15 and 23; administer only once.)
What do you do when you are: a. sleepy?____ b. hungry?____ c. cold?____ (Passes two.)

20. Articulates Consonants II (See p. 7.)
(Administer all articulation items at same time. Passes if correctly pronounces consonants in Groups I and II.)

SECTION VI: 3 years 6 months to 4 years

Auditory Comprehension

21. Recognizes Colors
(Six colored blocks.)
(Same as item 25; administer only once.)
Show me: a. the RED block____, b. the BLUE block____, c. the YELLOW block____, d. the GREEN block____, e. the ORANGE block____, f. the PURPLE block____
(Passes two; if five, credit item 25.)

22. Distinguishes Prepositions
(One block.)
(Same as item 14; administer only once.)
Put the block: a. on the chair____, b. under the chair____, c. in front of the chair____, d. beside the chair____, e. in back of the chair____
(Passes four.)

23. Differentiates Texture
(Sandpaper and smooth surface.)
a. Which is smoother?____
b. Which is rougher?____
(Passes two.)

24. Understands Action Agents
(*Picture Book* plate 14, p. 28.
Same as item 31; administer only once.)
Show me which one: a. swims in the water____, b. tells time____, c. we write with____, d. we read____, e. we eat at____, f. we put two pieces of wood together with____, g. we cut with____
(Passes five.)

Verbal Ability

21. Repeats Sentences
Can you say *I am a big boy (girl)*?
a. Mary and I feed our little dog every day.____
b. My mother and father went to the store today.____
c. Our mother washes the dishes and sweeps the floor.____
(Passes one.)

22. Knows Opposites
(Same as item 26; administer only once.)
a. Brother is a boy, sister is a . . . ____
b. In daytime it is light, at night it is . . . ____
c. Father is a man, mother is a . . . ____
d. The turtle is slow, the rabbit is . . . ____
e. The sun shines during the day, the moon at . . . ____
(Passes two; if three or more, credit item 26.)

23. Comprehends Physical Needs
(Same as items 15 and 19; administer only once.)
What do you do when you are: a. sleepy?____ b. hungry?____ c. cold?____ (Passes three.)

24. Counts to Ten
Do you know how to count to ten? (or) Let us say 1–2–3 . . . ____
(Counts to ten.)

SECTION VII: 4 years to 4 years 6 months

Name _____

Auditory Comprehension

25. Recognizes Colors
(Six colored blocks.)
(Same as item 21; administer only once.)
Show me: a. the RED block_____, b. the BLUE block_____, c. the YELLOW block_____, d. the GREEN block_____, e. the ORANGE block_____, f. the PURPLE block_____.
(Passes five.)

26. Touches Thumbs
Place your left thumb against your right thumb.
(Passes if thumbs touch at first trial.)

27. Understands the Concept of "Three"
(Twelve blocks.)
Give me just three._____
(Gives just three blocks.)

28. Distinguishes Weight Differences
(*Picture Book* plate 15, p. 30.)
Point to the one that is heavier: a. a bird or a cow_____, b. a bed or a chair_____, c. a boot or a shoe_____, d. a car or a dump truck_____, e. a lock or a leaf_____
(Passes four.)

Verbal Ability

25. Repeats Four Digits
(Same as item 33; administer only once.)
Listen. Say *3–4–2*.
Now say: a. *7–2–8–1*_____, b. *2–1–6–4*_____, e. *6–5–9–8*_____.
(Passes one.)

26. Knows Opposites
(Same as item 22; administer only once.)
a. Brother is a boy, sister is a . . . _____
b. In daytime it is light, at night it is . . . _____
c. Father is a man, mother is a . . . _____
d. The turtle is slow, the rabbit is . . . _____
e. The sun shines during the day, the moon at . . . _____
(Passes three.)

27. Comprehends Senses
(Same as item 31; administer only once.)
What do you do with: a. your eyes_____, b. your ears_____, c. your nose?_____ (Passes one.)

28. Comprehends Remote Events
What do you do: a. when you have lost something?_____ b. before you cross the street?_____
(Passes one.)

SECTION VIII: 4 years, 6 months to 5 years

Auditory Comprehension

29. Comprehends Right
a. Show me your right hand._____
b. Put both hands on your head.
c. Now put your hands on the table.
d. Which is your right hand?_____
(Passes a and *d*.)

30. Repeats Taps
Can you do this: a. (Tap twice.)_____ b. (Tap four times.)_____ c. (Tap three times.)_____
(Passes two.)

31. Understands Action Agents
(*Picture Book* plate 14, p. 28.
Same as item 24. Administer only once.)
Show me which one: a. swims in the water_____, b. tells time_____, c. we write with_____, d. we read_____, e. we eat at_____, f. we put two pieces of wood together with_____, g. we cut with_____
(Passes seven.)

32. Knows Body Parts
Show me your: a. head_____, b. arm_____, c. thumb_____, d. hand_____, e. knee_____, f. heel_____, g. palm_____, h. chin_____, i. eyebrow_____, j. little finger_____, k. elbow_____, l. wrist_____, m. ankle_____. (Passes eight.)

Verbal Ability

29. Knows Coins
(nickel, penny, quarter, dime)
What is this: a. nickel_____, b. penny_____, c. quarter_____, d. dime_____.
(Passes two.)

30. Names Animals
(Same as item 34; administer only once.)
Name all the animals you can think of until I tell you to stop._____
_____
_____
(Must name six or more in one minute.)

31. Comprehends Senses
(Same as item 27; administer only once.)
What do you do with: a. your eyes?_____ b. your ears?_____ c. your nose?_____
(Passes two.)

32. Articulates Consonants III (See page 7.)
(Administer all articulation items at same time. Passes if correctly pronounces consonants in Groups I, II, and III.)

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he following sections, IX and X, cover items 33 through 40. Each . passed earns 2 points or 3 months age credit. Note that these sections cover one year each, unlike the previous sections, which covered six months each. In the verbal ability sections, ignore faulty pronunciation.

SECTION IX: 5 years to 6 years

Auditory Comprehension

33. Comprehends Directional Commands
Put your left hand on your left knee._____
(Responds correctly on one trial.)

34. Counts Blocks
(Twelve blocks.)
Can you put . . . blocks here?
a. 3_____ b. 9_____ c. 5_____ d. 7_____
(Passes three out of four.)

35. Distinguishes Animal Parts
(*Picture Book* plate 16, p. 32.)
Which one has: a. the longest nose?_____ b. a bushy tail?_____
c. pointed ears?_____ d. a long,thin tail?_____
(Passes four.)

36. Adds Numbers Up to Five
(*Picture Book* plate 17, p. 34.)
If you have one apple and I give you two more apples, how many will you have?_____
If you have two crayons and I give you two more crayons, how many will you have?_____
If you have three pennies and I give you two more pennies, how many will you have?_____
(Passes two.)

Verbal Ability

33. Repeats Four Digits
(Same as item 25; administer only once.)
Say, *3–4–2.*
Now say: a. *7–2–8–1*_____, b. *2–1–6–4*_____,
c. *6–5–9–8* _____.
(Passes two.)

34. Names Animals
(Same as item 30; administer only once.)
Name all the animals you can think of until I tell you to stop.
_____
(Must name eight in 1 minute.)

35. Knows Morning versus Afternoon
a. Do you eat breakfast in the morning or in the afternoon?_____
b. Do boys and girls usually take a nap in the morning or in the afternoon?_____
c. When does afternoon start?_____
d. Which comes first, afternoon or morning?_____
(Passes three.)

36. Articulates Consonants (See page 7.)
(Administer all articulation items at same time. Passes if correctly pronounces consonants in Groups I, II, III, and IV.)

SECTION X: 6 years to 7 years

Auditory Comprehension

37. Comprehends Double Commands
Touch your right thumb with your right little finger._____
(Responds correctly on one trial.)

38. Counts Taps
Listen. (Tap twice.) How many times did I tap? Now listen. How many this time?
a. Tap seven times._____ b. Tap five times._____ c. Tap eight times._____
(Passes three.)

39. Knows Coin Values
(Dime, nickel, quarter, half-dollar, and *Picture Book*, plate 17, p. 34.)
Look at this money. Can you show me how many pennies are in a:
a. dime_____, b. nickel_____, c. quarter_____, d. half-dollar_____.
(Passes three.)

40. Adds and Subtracts Numbers up to Ten
(*Picture Book* plate 17, p. 34.)
a. If you had ten pennies and gave away four, how many would you have?_____
b. If you have five pennies and I gave you five more, how many would you have?_____
c. If you have five pennies and lost one, how many would you have?_____
(Points to or gives two correct answers.)

Verbal Ability

37. Repeats Five Digits
Say, *4–7.* Now say: a. *3–1–8–5–9*_____,
b. *4–8–3–7–2*_____, c. *9–6–1–8–3*_____.
(Passes one.)

38. Builds Sentences
Listen, I'm going to tell you about a cat and a mouse. *The cat chases the mouse.*
Now YOU make a sentence about:
a. cow, bigger, pig_____, b. boy, fell, leg
c. girl, flowers, field_____
(Passes two.)

39. Knows Address
Tell me where you live._____
(Gives correct address.)

40. Articulates Sentences V (See page 7.)
(Administer all articulation items at same time. Passes if correctly pronounces consonants in Groups I, II, III, IV, & V.)

Articulation Test Items

(To be used with the verbal ability section items 12, 20, 32, 36, and 40.)

Directions: *Administer all articulation items at one time.*

Give the numbered word first (i.e., 1. mom). If the child correctly pronounces both initial and final consonant sounds (underlined), the word is passed and there is no need to give alternate words a and *b*. However, if numbered word is not clearly articulated, then both the alternate words (i.e., my and home) must be administered, providing a second trial for that consonant sound.

The child's attention should be focused on the examiner before testing begins. "We are going to play a word game now. I'll say a word first, then you say the same word after me. Listen carefully. Say *baby*." (*Baby* is the practice word.) "Now, say . . ."

Scoring: Passing test items 12, 20, and 32 earns the child 1 point for each item if the child passes all the numbered words (or the alternants) in that group. Test items 36 and 40 credit 2 points if passed.

Score
0 or 1
_____ Item 12, Section IV

Score
0 or 1
_____ Item 20, Section V

Score
0 or 1
_____ Item 32, Section VIII

Score
0 or 2
_____ Item 36, Section IX

GROUP I (2 to 2½ yrs.)

Record
+ or −

_____1. mom _____
a. my _____
b. home _____
_____2. pop _____
a. pie _____
b. hop _____
_____3. we _____
a. won _____
_____4. bob _____
a. bee _____
b. web _____
_____5. nine _____
a. new _____
b. bone _____

(Passes 1 through 5.)

GROUP II (3 to 3½ yrs.)

Record
+ or −

_____6. did _____
a. do _____
b. mud _____
_____7. toot _____
a. to _____
b. hat _____
_____8. gag _____
a. go _____
b. dog _____
_____9. cake _____
a. key _____
b. bake _____
_____10. fife _____
a. fun _____
b. puff _____

(Passes 6 through 10.)

GROUP III (4½ to 5 yrs.)

Record
+ or −

_____11. valve _____
a. Vic _____
b. dove _____
_____12. little _____
a. like _____
b. ball _____
_____13. judge _____
a. jam _____
b. fudge _____
_____14. shush _____
a. shoe _____
b. push _____
_____15. chinch _____
a. child _____
b. much _____

(Passes 11 through 15.)

GROUP IV (5 to 6 yrs.)

Record
+ or −

_____16. zooms _____
a. zoo _____
b. buzz _____
_____17. six _____
a. so _____
b. house _____
_____18. roar _____
a. rabbit _____
b. door _____
_____19. thirteenth _____
a. think _____
b. teeth _____
_____20. street _____
a. strong _____

(Passes 16 through 20.)

Score
0 or 2
_____ Item 40, Section X

GROUP V (6 to 7 yrs.)

Directions: "Now we are going to say some sentences. Repeat just what I say: *Ice cream and cake are on the table.*" (This would be a practice sentence.)

Scoring: Circle any words (or sounds) that are unclear or incorrect.

Credit 2 points if Groups I, II, III, and IV were passed *and* if all consonants in sentences 21, 22, and 23 are pronounced correctly.

_____21. Spaceships race around the earth.
_____22. Alligators never brush their teeth.
_____23. A witch flies over the street.

(Passes Groups I through V)

Name _____ Age _____

Date adm. _____

Auditory Comprehension

Section I: 1 to 1½ yrs.
_____ 1. Understands Questions
_____ 2. Looks Attentively
_____ 3. Recognizes Doll Parts (Same as 7.)
_____ 4. Follows Directions (Same as 8.)
Section II: 1½ to 2 yrs.
_____ 5. Identifies Pictures
_____ 6. Discriminates Pictures
_____ 7. Recognizes Doll Parts (Same as 3.)
_____ 8. Follows Directions (Same as 4.)
Section III: 2 to 2½ yrs.
_____ 9. Understands the Concept of "One"
_____ 10. Compares Size
_____ 11. Understands Use (Same as 15.)
_____ 12. Follows Simple Commands
Section IV: 2½ to 3 yrs.
_____ 13. Recognizes Action
_____ 14. Distinguishes Prepositions (Same as 22.)
_____ 15. Understands Use (Same as 11.)
_____ 16. Distinguishes Parts
Section V: 3 to 3½ yrs.
_____ 17. Recognizes Time
_____ 18. Compares Length
_____ 19. Matches Sets
_____ 20. Groups Objects
Section VI: 3½ to 4 yrs.
_____ 21. Recognizes Colors (Same as 25.)
_____ 22. Distinguishes Prepositions (Same as 14.)
_____ 23. Differentiates Texture
_____ 24. Understands Action Agents (Same as 31.)
Section VII: 4 to 4½ yrs.
_____ 25. Recognizes Colors (Same as 21.)
_____ 26. Touches Thumbs
_____ 27. Understands the Concept of "Three"
_____ 28. Distinguishes Weight Differences
Section VIII: 4½ to 5 yrs.
_____ 29. Comprehends Right
_____ 30. Repeats Taps
_____ 31. Understands Action Agents (Same as 24.)
_____ 32. Knows Body Parts
Section IX: 5 to 6 yrs. (covers 12 months)
_____ 33. Comprehends Directional Commands
_____ 34. Counts Blocks
_____ 35. Distinguishes Animal Parts
_____ 36. Adds Numbers Up to Five
Section X: 6 to 7 yrs. (covers 12 months)
_____ 37. Comprehends Double Commands
_____ 38. Counts Taps
_____ 39. Knows Coin Values
_____ 40. Adds and Subtracts Numbers up to Ten

Verbal Ability

Section I: 1 to 1½ yrs.
_____ 1. Echoes or Imitates
_____ 2. Asks for Simple Need
_____ 3. Uses Ten Words
_____ 4. Names One Object
Section II: 1½ to 2 yrs.
_____ 5. Combines Words
_____ 6. Names Objects (Same as 10.)
_____ 7. Uses Pronouns
_____ 8. Refers to Self by Name
Section III: 2 to 2½ yrs.
_____ 9. Repeats Two Digits
_____ 10. Names Objects (Same as 6.)
_____ 11. Repeats Sentences
_____ 12. Articulates Consonants I
Section IV: 2½ to 3 yrs.
_____ 13. Repeats Three Digits
_____ 14. Uses Plurals
_____ 15. Comprehends Physical Needs (Same as 19 & 23.)
_____ 16. Converses in Sentences
Section V: 3 to 3½ yrs.
_____ 17. Gives Full Name
_____ 18. Counts to Three
_____ 19. Comprehends Physical Needs (Same as 15.)
_____ 20. Articulates Consonants II
Section VI: 3½ to 4 yrs.
_____ 21. Repeats Sentences
_____ 22. Knows Opposites (Same as 26.)
_____ 23. Comprehends Physical Needs (Same as 15 & 19.)
_____ 24. Counts to Ten
Section VII: 4 to 4½ yrs.
_____ 25. Repeats Four Digits (Same as 33.)
_____ 26. Knows Opposites (Same as 22.)
_____ 27. Comprehends Senses (Same as 31.)
_____ 28. Comprehends Remote Events
Section VIII: 4½ to 5 yrs.
_____ 29. Knows Coins
_____ 30. Names Animals (Same as 34.)
_____ 31. Comprehends Senses (Same as 27.)
_____ 32. Articulates Consonants III
Section IX: 5 to 6 yrs. (covers 12 months)
_____ 33. Repeats Four Digits (Same as 25.)
_____ 34. Names Animals (Same as 30.)
_____ 35. Knows Morning versus Afternoon
_____ 36. Articulates Consonants IV
Section X: 6 to 7 yrs. (covers 12 months)
_____ 37. Repeats Five Digits
_____ 38. Builds Sentences
_____ 39. Knows Address
_____ 40. Articulates Sentences V

AC Point Score _____
AC Age _____
ACQ _____
AC base age _____
AC ceiling _____

VA Point Score _____
VA Age _____
VQ _____
VA base age _____
VA ceiling _____

Language Point Score _____
Language Age _____
LQ _____

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Appendix E

Comparison of Home and Day Care PLS Test Results

	Day Care (Group D)	Home Care (Group H)
Auditory Comprehension	38	31
	34	34
	41	37
	34	40
	31	
Verbal Ability	36	28
	33	33
	39	35
	31	33
	30	
Language Point Score	74	59
	67	67
	80	72
	65	73
	61	
Language Age (in months)	67 1/2	56 1/4
	62 1/4	62 1/4
	72	66
	60 3/4	66 3/4
	57 3/4	